



UNIVERSITATEA DE MEDICINĂ ȘI FARMACIE
"CAROL DAVILA" din BUCUREȘTI



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UNIVERSITY OF MEDICINE AND PHARMACY "CAROL DAVILA" BUCHAREST

STRATEGY FOR SCIENTIFIC RESEARCH

2021-2024

Revised form - September 2023



1. Background for the revision of the current Research Development Strategy

Taking into account the elaboration of National and European documents of major interest for the development of the scientific research area, as well as the progress of UMFCF in this field, it was necessary to revise the Strategy for scientific research activity, approved in the Senate meeting 19.02.2021, and adapt it to the current needs and priorities.

The "Carol Davila" University of Medicine and Pharmacy of Bucharest (UMFCF) promotes a culture of performance, excellence and competitiveness in scientific research, serving the society. The fundamental objective of scientific research at UMFCF is to discover and implement innovative solutions that address the main causes of morbidity and mortality in Romania and respond to the challenges of global biomedical research. UMFCF provides a welcoming environment for experienced researchers with international visibility, who can support performance and the training of future talents. Career development is supported on specific trajectories, with an emphasis on progression from PhD to established scientists and field leaders. Scientific research, either fundamental or translational, is the basis for innovation and implementing new discoveries in patients' care.

UMFCF has initiated in 2022 the application for Human Resources Excellence in Research Award', awarded by the European Commission to the institutions which make progress in aligning their human resources policies to the 40 principles of the European Researchers' Charter and Code of Conduct for the Recruitment of Researchers, based on a customized action plan for HR strategy, with fair and transparent recruitment processes.

At the same time, UMFCF joined in December 2022 the Coalition for Research Evaluation Reform (CoARA), an initiative that proposes a concrete support platform for all research institutions, with the objective of contributing to the development of new methods and practices of research evaluation. This action, carried out at the initiative of stakeholders, is complementary to the strategic directions set by the European Commission as part of the New European Research Area (ERA). In 2022, UMFCF has approved the Gender Equality Plan (PEG) for 2022-2025, a strategic document aimed at achieving gender equality and other inequality grounds such as disability, age, sexual orientation, religion or ethnicity. In 2023, UMFCF became an active player in the European space of academic institutions by joining the UNILION network of universities and directly participating in specific working groups dedicated to Horizon Europe, in order to



increase European and international cooperation. The European collaboration also aims to integrate UMFCDD into university working groups dedicated to shaping FP10 program strategies.

Mission. The "Carol Davila" University of Medicine and Pharmacy of Bucharest (UMFCDD) promotes a culture of performance, excellence and competitiveness in scientific research, at the service of society. The fundamental objective of scientific research at UMFCDD is to discover and implement innovative solutions that address the main causes of morbidity and mortality in Romania and that respond to the challenges of global biomedical research.

The strategic direction of UMFCDD in the field of scientific research is to accelerate efforts to become a world-class university. In the medium term, UMFCDD aims to represent a pole of expertise and advanced knowledge through its specialists, through its technical and logistical resources, and through the institutional collaborations developed. To this end, UMFCDD aims to create a competitive environment of research / innovation, ensuring a balance between academic excellence and clinical efficiency, in order to train competent specialists, with a very good professional training, with a focus on progress and innovation, able to integrate into the perpetual competition of the European community medical system.

UMFCDD encourages inter- and trans-disciplinary collaboration in scientific research, especially in those fields that reorient and transform XXI century medicine into an innovative, digitized and personalized medicine, and scientific research activities are in a permanent dynamic, in line with conceptual developments and technological advance at international level.

Priority scientific objectives and directions.

The strategy for the development of the research activity is an integral part of the Strategic Plan for Institutional Development 2021-2028 and is connected to the priorities of: the National Strategy for Research, Innovation and Smart Specialization (SNCISI) 2022-2027, the National Strategic Agenda, the Health Operational Program, the Regional Strategy for the Ilfov-Bucharest Region, National Recovery and Resilience Programme PNRR, Operational Programme for Smart Growth, Digitalisation and Financial Instruments 2021-2027, as well as the European Union Framework Programme for Research and Innovation 2021-2027, Horizon Europe Strategic Plan 2021-2024, EU4Health, Digital Agenda, Strategic Plan 2020-2024 of the Directorate for Health and Food Safety (DG Sante), European Charter of Researchers and Code of Conduct for recruitment of researchers.

At institutional level, the research directions aim to ensure the continuity of priority themes (<https://umfcd.ro/cercetare-si-dezvoltare/centre-de-cercetare/directii-de-cercetare/>), as well as their development / redefinition, in order to align with the structures of the European program Horizon Europe 2021-2027 (*Personalized Medicine, Nanotechnology, Biotechnology, Advanced*



Materials, Food, Digital Development), as well as complementary European programmes: the European Structural and Investment Funds (ESIF), which support economic development and regional cohesion in the EU, the European Innovation Council (EIC), the European Regional Development Fund (ERDF) and the European Social Fund (ESF), which support the development of innovative technologies and businesses.

Strategic priorities achieved through cooperation with other institutions in the Member States can lead to better coordination and cooperation between EU countries, especially during emergencies; improving evidence for decision-making on health systems and the allocation of related resources; promoting digitalisation through cost-effective health technologies and better use of data and promoting exchanges of successful EU health promotion practices and initiatives.

Harmonization of the UMFCF research development strategy with the EU health research and innovation strategy also includes cooperation for initiatives supporting the sustainability of health systems to ensure the EU's strategic autonomy - particularly important autonomy in a crisis situation, as well as facilitating patients' access to truly innovative medical technologies, for the sustainability of health systems. The EU strategy for an effective response to serious cross-border health situations has as its core the enhanced cooperation against vaccine-preventable diseases and the fight against antimicrobial resistance. These, together with harmonised strategic programmes on substances of human origin and transboundary health, will contribute to a health system that rapidly assimilates scientific and technological progress.

The general objectives in scientific research assumed at institutional level are:

- Stimulating priority research directions, which, based on existing expertise and resources, focus RDI activity in the thematic areas of the fields on relevant specialized topics at national and international level;
- Promoting fundamental and applied research, encouraging interdisciplinary research, promoting medicine based on scientific evidence, developing the spirit and critical thinking;
- Promoting an efficient, open, reproducible research activity, with accessible data in accordance with national and European policies;
- Promoting open strategic autonomy through the development of key digital, enabling and emerging technologies, sectors and value chains;
- Increasing the visibility of UMFCF and promoting excellence through internationalization to attract highly qualified human resources from the country and abroad;



- Superior capitalization of RDI results to improve UMFCF's position in various academic rankings;
- Stimulating competition by awarding researchers with proven performance in RDI activities;
- Identifying new sources of funding and developing partnerships in RDI activities, relevant to regional, national and international.

Supporting RDI excellence and increasing competitiveness at institutional level to achieve the status of European regional leader implies **achieving the following specific objectives:**

- 1. Support and development of RDI infrastructure**
- 2. Development of RDI competences of human resources**
- 3. Optimizing administrative capacity in capitalizing on RDI results**
- 4. Increasing the visibility of UMFCF**
- 5. Increasing the competitiveness of UMFCF**
- 6. Diversification of sources of RDI activity financing**

Achieving these specific objectives is possible through the following actions:

- Strengthening scientific research focused on quality, discovery and innovation
- Internationalization of scientific research activity
- Development and valorization of human capital, strengthening the involvement of students, doctoral students and residents in medical and pharmaceutical research
- Strengthening and expanding research infrastructure
- Digitalisation and promotion of smart technologies
- Professionalization of research management
- Increasing institutional capacity to capitalize on high-performing results
- Supporting and developing the skills of multidisciplinary research teams to stimulate and develop viable collaborations with partners from the economic, public and private environment, in order to achieve a strategic position in the European space.
- Support for innovation and technology transfer
- Promoting Open Science



1. Support and development of RDI infrastructure

- development of a multidisciplinary health research center, with open access for all members of the academic community, registered as infrastructure of national interest
- optimization of the existing material base by purchasing high-performance equipment, concentrated in large centers, accessible to support the development of research projects to the entire academic community,
- forecast a judicious and coherent allocation of future investments to support and develop this research infrastructure.
- using the material base at higher parameters, as well as increasing the complexity of research by optimizing the allocated resources in order to increase institutional visibility.

The activities leading to this objective shall aim at:

- expansion and diversification of the material base, oriented towards high-performance equipment
- developing policies to optimize the functionality and performance of research infrastructure
- access of human resources to innovative infrastructure in the bio-medical sector.
- correlation with the infrastructure and equipment investment and procurement program

2. Development of RDI competences of human resources

The biomedical field is one of the most important, dynamic, innovative and technologically advanced fields, which must be in permanent development to meet current health challenges. Responding to these challenges involves ensuring a competent and highly qualified human resource, which, together with an adequate infrastructure at institutional level, makes it possible to define a sustainable strategy in positioning UMFCD as a European regional leader. Thus, optimizing the human resources policy is a priority at institutional level, to increase the critical mass of researchers, to ensure success and excellence. It aims to:

- increasing the number of students and PhD students attracted to research
- supporting young researchers (PhD and postdoctoral students)
- facilitating *know-how* exchanges with highly qualified specialists from other academic structures in the field or complementary/related, in full accordance with the objective



assumed at institutional level of moving from quantity to quality in capitalizing on scientific research results

- internationalization of research teams, and promotion of the principles of open, transparent and merit-based recruitment, according to the principles promoted by the Charter and the European Code of Researchers
- promoting mainly inter- and multidisciplinary research through transparent and sustainable mechanisms, forming teams that include experienced teachers and researchers with project portfolio, together with master students, doctoral students and postdoctoral researchers and integrating specialists in multidisciplinary research teams of excellence,
- increasing the degree of interdisciplinarity and applicability of research to ensure the increase of institutional visibility and specialists through the quality of disseminated results (articles published in ISI journals (Q1), papers presented at recognized scientific events, patents) and technology transfer capacity.
- increasing the rate of submitting and winning projects in different competitions, thus contributing to optimizing the external financial contribution
- acquiring skills that will underpin the initiation of new collaborations with complementary partners from the public/private environment and will lead to emphasizing the interdisciplinary and applicability character of research,
- actively promoting the principles of ethics in scientific research, academic integrity and professional deontology

The activities subscribed to this objective are:

- I. Competitive award of
 - a. *internal research grants in tutoring system* - at institutional level, the aim is to support RDI excellence of young researchers, a fundamental element of the human resources strategy, as well as to optimize the framework for conducting postdoctoral research
 - b. *mobility grants* - have as main purpose to support young researchers by accumulating know-how after participating in scientific events and international innovation competitions, invention fairs or internships in laboratories or centers of excellence
 - c. *grants to support activities after completion of research projects and preliminary activities for initiating future research projects*
- II. Supporting access to international libraries / archives / databases - facilitating access to quality scientific information in order to increase the performance of the human resource of UMFCB in terms of interconnection of RDI activities in the international context, as well as the ability to analyze and interpret the results



3. Optimization of administrative capacity in capitalizing on RDI results

Capitalizing on the results obtained from RDI activities is a strategic element in institutional development. It aims to:

- Reorganizing and improving the performance of the Research-Development-Innovation Directorate
- Evaluation of intellectual property portfolio, identification of innovation strategies to support "applicative creativity" at institutional level
- Stimulating technology transfer
- Supporting the development of the Innovation and e-Health Center (<https://cieh.umfcd.ro/>)
- Supporting the submission of patent applications for inventions obtained from the RDI process, by implementing at institutional level a *patent support program*
- Supporting applications for institutional development projects
- Support of the UMFCF library to ensure access to scientific information
- Stimulating RDI activity by allocating additional resources to reward performing researchers/research teams

4. Increasing the visibility of UMFCF

Institutional promotion to increase visibility involves the following activities:

- Supporting activities to disseminate research results by publishing them open-access in prestigious scientific journals, with increased impact factor (continuation of the Publish not perish)
- Supporting participation in international networks,
- Supporting and encouraging publications in international collectives
- Intensify collaborations with the private sector, especially industry and research
- Defining new research directions adapted to the societal challenges posed by the COVID-19 pandemic, climate change, ageing population and humanitarian crises
- Updating the database of potential collaborators (research institutes, universities, companies specialized in environments of interest, regional development agencies, etc.) in order to optimize the technology transfer activity
- Intensifying collaborations with decision-making authorities in regulating health policies



- Identifying opportunities to capitalize or implement research results, through participation in scientific events and supporting the intellectual property portfolio and technology transfer direction
- Elaboration of a research strategy dedicated to the Doctoral School in order to facilitate and encourage the realization of joint doctoral theses, especially those with foreign supervisors
- Providing support for submitting applications for funding in national/international competitions
- Encouraging research contracts concluded with the private economic environment and NGOs
- Supporting participation in the formation of consortia and partnerships in the field of research with prestigious national and international institutions
- Development of the system for rapid information of the academic community about the various calls for research projects, national and international (through the COM DIGITALE e-mail address) and permanent updating of the www.umfcd.ro website
- Development of fundraising mechanisms to stimulate research and research visibility

5. Increasing the competitiveness of UMFC D

In order to achieve this objective, the following are taken into account:

- Continuous analysis of the coordinates present in the major international rankings of universities (e.g. ARWU, URAP, SCIMAGO) both in terms of aspects that transcend the quantitative paradigm of Scientometric indices, as well as qualitative aspects, involvement of education and innovation, social impact and balanced approach to the specificity of the bio-medical field, as well as of the local/regional specificity
- Formulating strategies to improve scores obtained in international rankings, as well as to broaden inclusion in other prestigious rankings (THE, QS, RUR)
- Strengthening administrative capacity in the digital sector by optimizing the functioning of the platform dedicated to reporting scientific research results
- Supporting start-up initiatives
- Connect with European research clusters to increase participation in Horizon Europe, other European RDI programmes and other transnational initiatives
- Promoting investigation/synthesis/analysis techniques with positive impact on the environment and



6. Diversification of funding sources for RDI activity

UMFCD, through its research development strategy, supports participation in specific, co-funded or co-programmed EU partnerships: European Health Research Area (ERA Health); health systems transformation, personalised medicine; rare diseases; antimicrobial resistance; European Open Scientific Cloud (EOSC); pandemic preparedness; as well as the Cancer Mission. At institutional level, the concern for identifying alternative solutions and new services with market potential in the health field, but also in other areas of interest specific to Horizon Europe Pillar 2 2021-2027 (Food, Bioeconomy, Environment, Digital Development) continues. Thus, UMFCD aims to: intensify participation in European Union RDI programs (*Horizon Europe and ERDF, ESF+, under the programming framework 2021-2027, ERA-NET/ ERA-NET Cofund projects, JPIs*), as well as encourage financing opportunities from the InvestEU program by disseminating information on how to access, as well as advisory services offered

Supporting innovation and technology transfer is a particularly important aspect in the sustainable development of UMFCD, also found in Horizon Europe Pillar 3 2021-2027. At institutional level, the innovation management system aims to:

- expanding and stimulating research activities with rapid applicative potential
- identifying new potential beneficiaries and users of solutions with impact on health and increasing the quality of life
- functionalization of the CTT-UMFCD Technology Transfer Center
- ensuring the transfer of know-how between RDI structures, private environment, institutions, population
- increasing the degree of information of teachers, researchers, doctoral and master students regarding Intellectual Property, copyright.

Increasing the complexity of RDI activities (adequate infrastructure, highly qualified human resource) and support for technology transfer will ensure a significant increase in institutional visibility and competitiveness and will facilitate the active participation of UMFCD in the clusters of Horizon Europe Program 2021-2027 and in the programs of the NextGeneration EU strategy, on international cooperation in a changing world.

The UMFCD supports and promotes open science, which becomes a *modus operandi* for conducting research and innovation by sharing knowledge, data and tools as early as possible, in open collaboration with all relevant knowledge actors and society as a whole. The UMFCD recognises that open science practices, which follow the principle of '*as open as possible, as closed as necessary*', enhance the quality and impact of research and innovation and lead to greater responsiveness to societal challenges. At the same time, facilitating the population's access to research results, as well as defining and adapting research priorities to citizens' needs, are part of the role assumed by UMFCD, as a University serving the community.